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## SUBACUTE CYSTITIS FOLLOWING PARTURITION.<sup>1</sup>

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No mention is made, in any of the works on obstetrics which I have been able to consult, of any inflammatory condition of the bladder following delivery. Holmes in his *System of Surgery* places among the causes of acute cystitis a protracted or difficult labor, but the disease as he describes it is a very severe affection, which runs a rapid and often fatal course, and which is always accompanied by a marked constitutional disturbance.

During the past three years I have met with four instances of a marked inflammatory condition of the bladder following delivery. It is possible that many of the cases of metritis or circumscribed peritonitis which have been reported by physicians may have been a similar temporary affection of the bladder, and it is with the view of calling the attention of the profession to this variety of cystitis that I venture to report the following cases.

CASE I. (with clinical chart). F. H., married, primipara, twenty-three years old, was taken in labor October 5, 1873, about six o'clock in the morning. The os slowly dilated, and the first stage was completed at 2.30 P. M. The pains, which had been regular and of considerable intensity during the day, now began to occur at longer intervals, and, as but little progress if any was made during the next three hours, forceps were applied, and the patient was delivered at 6.30 of a male child which weighed eight and a quarter pounds. During the first seven days which followed the delivery nothing abnormal was noticed; but in the evening of the eighth day the patient had a marked chill, followed during the next seven days by a very high evening temperature and pulse (the former being in the neighborhood of 102°, and the latter 120), while the morning examination showed a temperature and a pulse of only about 100. The morning after the chill, the patient complained of great pain and scalding on micturition, and there was very marked tenderness over the pubes. There was more or less nausea, and two attacks of vomiting occurred during the day. The

<sup>1</sup> Read before the Obstetrical Society of Boston, December 11, 1875.

history of the milk and lochia was normal throughout the progress of the case. The bowels were moved on the third day, by a dose of castor-oil, and subsequently the patient had, as a rule, one daily dejection. The dysuria was relieved temporarily by the occasional use of suppositories containing an eighth of a grain of the sulphate of morphia. Poultices of linseed meal and mustard were applied over the bladder. The tenderness over the pubic region still remaining, and the dysuria also being frequently complained of, an examination of the urine was made, and a considerable quantity of pus was found in it, together with a slight amount of blood. The bladder was accordingly washed out (October 20th) by means of a double silver catheter, with warm water, and afterwards with a weak solution of carbolic acid (six drops to the pint of water). The temperature and pulse at once fell, and the patient expressed herself as feeling decidedly better. The dysuria was greatly relieved. During the next five days the patient slowly improved, and the tenderness over the pubic region was very much less than before.

On the morning of October 27th, however, she had a second chill. The temperature and pulse began again to show a high evening and a low morning range. The dysuria returned, although it was not so severe as before. The tenderness over the bladder was again noticeable. The urine was found (November 3d) to be very offensive, and to contain a large amount of pus. The bladder was again washed out, and the immediate relief from all the symptoms just described was even more marked than on the first occasion. The temperature and pulse at once fell, the dysuria disappeared, and in three days no tenderness over the bladder could be detected. The patient made a rapid recovery, and went out to ride November 12th.

She was again confined May 3, 1875, but no deviation from a normal delivery or convalescence was noted.

CASE II. M. L., married, primipara, nineteen years old, entered the Boston Lying-In Hospital November 5, 1875, to await her confinement. Labor began early in the night of November 16th, although she had suffered considerably during the previous twenty-four hours from false pains. The os dilated rapidly, and the first stage of labor was completed about six o'clock. The pains now began to come on at longer intervals, and were less severe in character than before. The head, having reached the perinæum, made but little if any progress until eight o'clock in the morning, when, the os being fully dilated and the head low down in the perinæum, the membranes were ruptured. The pains at once became stronger in character, and a male child of seven and a half pounds was born at 9.45. In the evening, the patient being unable to pass her water, it was drawn by a catheter.

November 17th. The report was that the patient had slept well and was feeling nicely, although somewhat restless.

November 18th. The water was again drawn by the catheter. The milk and lochia were normal, and continued so during the subsequent history of the case. The pulse and temperature were somewhat elevated, as is usually observed during the accession of the milk. The temperature was about  $101^{\circ}$  and the pulse 120.

November 19th. At the morning visit the patient expressed herself as feeling very well. The temperature and pulse had both fallen to 98. In the afternoon, however, she complained of great distress in the abdomen, which was not relieved by the application of poultices. One eighth of a grain of the sulphate of morphia was ordered, and the patient was soon quiet. An enema was given at the evening visit, as no dejection had been had since the confinement; the effect of the injection was slight.

November 20th. The skin was hot and dry, the abdomen somewhat tender over the region of the bladder. Half an ounce of castor-oil was ordered, and a good operation was obtained from the bowels. The temperature was  $100.6^{\circ}$ , the pulse 120. Poultices of linseed meal and mustard were applied to the abdomen. In the evening the temperature had risen to  $103.6^{\circ}$ .

November 21st. The patient remained about the same, the temperature in the morning being  $99^{\circ}$ , and at night  $104.2^{\circ}$ .

November 22d. The tenderness of the abdomen had nearly disappeared. The patient reported herself as feeling well. The temperature in the morning was  $101^{\circ}$ , at night  $103^{\circ}$ .

During the next four days the patient's condition remained about the same. She did not complain of any abdominal pain or tenderness. The temperature in the morning averaged about  $98^{\circ}$ , and at night  $102^{\circ}$ . or  $103^{\circ}$ , with a corresponding variation in the pulse. She reported herself as feeling well, and complained only of loss of appetite.

November 27th. She had a chill in the afternoon, and the next morning was unable to pass her water, which was therefore drawn by a catheter.

During the next three days no change was noticed, the temperature being, as before, normal in the morning, but quite high at night. Some tenderness on pressure over the bladder was present.

November 30th. The patient had a second chill.

December 1st. Two chills occurred. There were also two attacks of vomiting. The general condition of the patient was one of considerable nervousness, for which bromide of potassium was ordered. She now began to complain of great pain and scalding on urinating. Suppositories containing an eighth of a grain of the sulphate of morphia were ordered, *pro re nata*.

December 2d. The patient had another attack of vomiting and complained of some abdominal pain. No tenderness, however, could be detected anywhere.

December 3d. There was decidedly less pain on micturition. The temperature, as before, still remained low in the morning and high in the evening. An examination of the urine, drawn by catheter, showed the presence of considerable pus.

December 4th. The bladder was washed out with a weak solution of carbolic acid (three drops to the pint), as in the previous case. The next day, December 5th, the patient reported herself as feeling very much better. There was no dysuria. The evening temperature fell to 99.8°.

December 6th. An examination of the urine showed decided diminution in the amount of pus. The bladder was again washed out. From that time the temperature, morning and evening, remained nearly constant at a little over 98°.

December 10th. The patient sat up.

December 11th. She was about the ward, feeling as well as ever.

She was discharged from the hospital, well, December 16th:

CASE III. F. S., single, primipara, twenty-one years old, entered the Boston Lying-In Hospital April 16, 1874, to await her confinement. Labor began about eleven o'clock of the night of April 28th. The waters broke at five o'clock of the morning of the 29th, and the os was fully dilated at eleven o'clock. The pains having become very weak, and the labor making no further progress, forceps were applied, and the child (a female weighing six and a half pounds) was born about half past twelve. The first five days following the delivery, the urine was drawn by a catheter, the patient being unable to pass it herself.

At the evening visit of May 4th, the patient complained of some pain over the region of the bladder, and the next morning there was marked dysuria.

May 5th. The pain over the bladder had considerably increased, and the catheter had to be used. A poultice of linseed meal and mustard was applied over the pubic region.

R̄.	Potassæ bicarbonatis . . . . .	3 ij.
	Tincturæ hyoscyami . . . . .	3j.
	Mucilaginis acaciæ . . . . .	3 v. M.

S. Half an ounce every three hours.

The scalding and pain on micturition gradually diminished, and the medicine was discontinued May 8th. The tenderness over the bladder was noticeable for a day or two longer.

May 11th. The patient sat up a short time, and the next day complained again of dysuria, and pain over the pubes. The recipe of the 5th was resumed, and a poultice reapplied.

May 14th. The pain and tenderness over the bladder had increased considerably, the former keeping the woman awake at night. There was some dysuria. The prescription of the 5th was omitted, and one eighth of a grain of the sulphate of morphia was ordered, *pro re nata*.



May 15th. The patient reported herself as feeling much better. The abdominal pain and tenderness were decidedly less. The evening temperature and pulse were from the outset higher than the morning. The dysuria still continuing, the urine was examined May 21st, and found to contain a large amount of pus.

May 25th. The bladder was washed out with a weak solution of carbolic acid (six drops to the pint), and a drachm of the fluid extract of *pareira brava* was ordered three times a day.

May 27th. The tenderness over the bladder was decidedly less, although the patient still complained of great pain after passing water.

The dysuria gradually diminished, and June 6th the patient declared herself entirely free from it. An examination of the urine showed an entire absence of pus.

June 9th. The patient was discharged from the hospital, well.

The history of the lochia was normal throughout the course of the case. The variation between the record of the pulse and temperature, as taken in the evening, when compared with that observed in the morning was not nearly so noticeable as in Cases I. and II.; but the variation was constant throughout the course of the case. No chill was observed, nor was the tenderness over the pubes so great as in the two previous cases. The dysuria however was, if anything, more marked, and less readily yielded to treatment. There was no loss of appetite, and but little if any constitutional disturbance.

CASE IV. M. O., married, primipara, thirty-seven years old, entered the Boston Lying-In Hospital October 4th, during the service of Dr. Tuck, who has kindly allowed me to report the case. Labor had begun, but the pains were very weak, and occurred at long intervals. The waters broke very early in the morning of October 6th, the os at that time scarcely admitting the tip of the finger. During the next three days the pains were very weak, and occurred, as before, at long intervals, the os being very firm and rigid. Dilatation was very gradual.

October 9th. Morphia was ordered, and the patient obtained some sleep. The water was frequently drawn by a catheter, the patient being unable to pass it herself. The urine on the 9th was reported as dark-colored and offensive. At seven o'clock in the evening the child (a female weighing seven and a quarter pounds), was born, dead. The placenta came away at once, and the uterus contracted well, but soon an alarming post-partum hæmorrhage took place, which was presently controlled by ice, ergot, brandy, and opium.

The next morning the patient was very comfortable. During the next three days the history of the case was that which usually follows natural labor.

October 17th. One week after her delivery, the patient complained of pain in micturition. The urine was very offensive and contained a large amount of pus.

October 18th. The bladder was washed out with a solution of carbolic acid (three drops to the pint), and the next day the patient reported decidedly less pain on passing water.

October 20th. The bladder was again washed out. No further dysuria.

October 22d. The patient sat up for an hour. Her subsequent history was one of rapid convalescence, and she was discharged from the hospital, October 31st, well.

Prior to the first washing out of the bladder the pulse had remained over a hundred, but at once fell to about 80. The temperature, also, which had been high at night and low in the morning, although the variation was not so marked as in the other cases reported, fell to 98°, at which point it remained constant.

*Remarks.* — All these cases present certain points in common. In all, more or less protracted pressure was exerted, during the progress of the labor, by the child's head upon the bladder. In two of the cases forceps were used to hasten the delivery. In the two cases (I. and II.) in which the cystitis was best marked from the outset, the invasion of the disease was announced by a chill. In the first case, where there was a relapse of the disease, a second chill preceded the rise in the temperature and pulse. In all the cases there was great dysuria, which in most of them was the chief symptom complained of by the patient, apart from the general constitutional disturbance. In three of the cases (I., II., and III.) there was marked tenderness over the region of the bladder, and the patients complained of more or less pain referred to the same spot. In one case (III.), the pain was so great as to render the use of morphia necessary, in order that the patient might obtain any rest or sleep. In the severer cases (I. and II.) more or less nausea and vomiting were noticed during the progress of the disease. The clinical history of the lochia and milk was normal from first to last. In all the cases the urine contained a large amount of mucus and more or less pus. In only one case (I.) was blood found in the urine on a microscopical examination. In none of the cases was the constitutional disturbance as great as would naturally have been expected from the daily variation in the record of the temperature, pulse, and respiration. At the evening visits the patients complained of feeling feverish and sick, but in the mornings declared themselves almost well, except for the dysuria or the local pain and tenderness on pressure over the pubic region. The record of the pulse, temperature, and respiration was, in all these cases, very peculiar, being characterized by a low morning and a high evening range, and this peculiarity was especially marked in the first two cases. In the last two the same variation was noticed, but the differences recorded were not nearly so great as in the others. A clinical chart of the first case is published; it illustrates very well the daily variations observed.

The only treatment adopted was the application of poultices over the region of the bladder, until the pain and tenderness had in a great measure subsided; the administration of morphia, either in suppositories or by the mouth, for the relief of the pain or dysuria; and finally, after the more acute symptoms had subsided, the bladder was washed out with warm water, and later with a weak solution of carbolic acid and water. In all the cases the washing out of the bladder was followed by a relief, and by a sudden disappearance of all the symptoms complained of, that was very striking.

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### REVACCINATION DURING THE PRESENT EPIDEMIC OF SMALL-POX IN CINCINNATI<sup>1</sup>

BY WILLIAM B. DAVIS, M. D.,

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THE presence of variola in our city has caused much apprehension to our citizens, and led many, particularly those who have been exposed to it, to seek the protection which vaccination and revaccination give. In common with other physicians I have been called upon to revaccinate a number of persons. My past experience had not caused me to expect any marked result where the operation had been well performed once; hence I executed it more as a precautionary measure to those who had been exposed, knowing that a small fraction of mankind may take variola twice, and believing that this susceptible class may take the vaccine disease more than once. During my experience as a practitioner of medicine in this city, extending over twenty years, I have frequently been called upon to revaccinate, particularly whenever variola was prevailing, and yet I do not now recall a single instance wherein it was successful, or where it produced any degree of inflammation which attracted the attention of the party. It is true that I never made it a point to follow up the cases and see for myself the result. Yet I think it is reasonably certain that if severe inflammatory symptoms had occurred, my attention would have been called to them, for the majority of these persons were my regular patrons.

In the early part of November last I revaccinated a family of seven persons, including domestics. I was not a little surprised when summoned on the eighth day thereafter to see the lady of the house, who was said to be suffering very much with her arm, the one vaccinated. The lady is eighteen years of age, of a nervous temperament, and has one foveated cicatrix, about one fourth of an inch in diameter, resulting from her primary vaccination in infancy. I found her with a flushed face, accelerated pulse, complaining of chilliness, followed by fever and

<sup>1</sup> Read before the Cincinnati Medical Society, December 14, 1875.

headache. An examination of her arm revealed, at the point of insertion of the virus (I had scarified a surface at the insertion of the deltoid of the left arm, about one third of an inch in diameter, and plastered the virus over it), a vesicular eruption, confluent in character, the outer rim elevated and of a pearly hue, with a depression in the centre. It was just such a result as usually follows a primary vaccination by scarification at the end of the eighth day, when the areola is forming. Her arm differed from a primary vaccination in this, that there was a higher grade of inflammation than I had ever seen, involving and encircling the whole arm. On the ninth day the glands of the axilla were enlarged and painful, and the inflammation extended one third down the fore-arm. On the tenth day her fore-arm was swollen to the wrist, but her arm was subsiding; from this day the swelling rapidly declined, and on the fifteenth day there was a well-formed crust, which adhered until the twentieth or twenty-first day. One other member of this household, a servant, a strong, robust woman of twenty-five, had just such an arm as her mistress. Two others, aged sixteen and eighteen, healthy girls, had well-marked vesicular eruptions at the point of vaccination, and inflammation encircling the arm on the seventh day, but it rapidly declined from that date. In the remaining three there was no result.

About this time I was called to see two cases of varioloid, and one patient was brought to my office, on whose person the eruption of variola appeared twelve hours afterwards; hence I concluded it would be prudent to revaccinate myself and the members of my household, seven in all. I will state just here that it has been my custom every year, when exposed to variola, to insert some reliable vaccine matter into my arm. I have probably done it not less than ten times during the past twenty years, and the result has been absolutely nothing save the very slight irritation resulting from scarification, which subsided usually within three days. I revaccinated myself and family on November 23d. In four members there was no result; in the fifth, a boy of fourteen years, on the fifth day all of the appearances indicated that it would be successful; there was a vesicular eruption, and inflammation rapidly developed around the point of insertion, and extended around the whole arm by the sixth day, and then rapidly subsided before the tenth day. It presented the appearance of a "modified vaccination," if I may be allowed to use the expression. We know that as a rule, where an individual takes variola after vaccination, the disease is "modified," so modified that there may be no secondary fever and indeed there may be no eruption, or but one or two imperfect vesicles.

I know that some eminent medical gentlemen have pronounced such vaccinations "spurious vaccinations," or "not vaccine processes." I think these gentlemen have mis-read Seaton, who says, on page 113 of his Handbook on Vaccination, revaccination fails "to produce any

local effect whatever, or produces a modified effect, *resembling* one of the forms of spurious vaccination." I do not think a careful reading will lead any one to the conclusion that he regarded these modified vaccinations as having "no specific vaccine process." On the contrary, on page 311 of his Handbook, he distinctly recognizes them as possessing the regular phenomena of vaccination. Under the head of Degree of Success of Revaccination, his classification is "perfect," "modified," "none."

During the present epidemic I have seen very many such revaccinations. They undoubtedly followed some law, for they were uniform in their development, appearance, and subsidence: on the fifth day they showed all the indications of a successful normal vaccination; a vesicular manifestation matured, or rather arrived at the stage of its fullest development, on the sixth or seventh day; then a rapid areolar growth, extending in an irregular manner, until it involved and encircled the arm; and a complete subsidence by the tenth or eleventh day. If this be "spurious vaccination," then is varioloid spurious variola.

But to return to my story. My wife had been successfully vaccinated in infancy, and has a good mark resulting from it. We (myself and wife) felt our arms getting sore on the fifth day. A patch of vesicles appeared at the point of insertion of the virus, and gradually increased until the eighth day, when by coalescing they presented a confluent appearance, covering a surface one third of an inch in diameter, having an irregular circumference made up of numerous imperfect vesicles, which were slightly elevated at the edge and depressed in the centre. On the evening of the eighth day, Tuesday, November 30th, I exhibited my arm to the members of the Cincinnati Medical Society. In the after part of that night, I had severe inflammation of my whole arm extending to my elbow, and slight constitutional disturbance, as exhibited by a general malaise. My wife was similarly affected. After the tenth day, all symptoms rapidly subsided, and large crusts formed on our arms by the fourteenth day. Mr. Seaton, in his Handbook of Vaccination, page 113, speaking of revaccination, which he compares to spurious vaccination, says, "The scab, small and imperfect, forms generally on the eighth day and soon falls." Quite a number of the scabs of my revaccinations were large and possessed all the characteristics of a primary crust, and were adhering to the arm on the twenty-first day.

These cases and others led me to closely observe all my revaccinations from the 1st of November to December 8th. I made a record of the number, age, condition of primary cicatrices, date of revaccination, and the result. I have subdivided them into four classes:—

1st. Those in which the symptoms reached their height on the sixth or seventh day, with more or less of a vesicular development at the point

of insertion, and characterized by more or less inflammatory action of the arm, followed by rapid subsidence by the tenth or eleventh day.

2d. Those which closely resembled a regular primary vaccination in all their stages.

3d. Those which, while following the course of a primary vaccination, were characterized by high inflammation, involving the arm, axillary glands, and, it may be, the fore-arm.

4th. Those in which there were no results.

Below, I present the tabulated results of observations on one hundred and fifty-two private patients. Table A shows the condition and number of primary cicatrices and the results. Table B shows the results of the revaccination of fifty students of the Miami Medical College on November 30th. On the eighth day or rather the evening of that day, Tuesday, December 7th, I displayed the arms of twelve or fifteen of them to the Cincinnati Medical Society. They were those whose arms were most highly inflamed. Table C shows the ages of the patients by periods.

A.—TABLE OF 152 PRIVATE PATIENTS REVACCINATED FROM NOV. 1 TO DEC. 8, 1875.

AGES RANGING FROM FIVE TO SIXTY-TWO YEARS.

	Success- ful.	No Result.	Total.	Taken Partially.	Perfectly.	Severely.	No Result.	
One good foveated cicatrix.....	49	35		35	3	11	35	56 per cent. successful. } 62 per cent.
One superficial cicatrix.....	10		94	8		2		100 per cent. successful. } successful.
Two good foveated cicatrices.....	7	2	9	6	1	1	2	87 per cent. successful. }
Three good foveated cicatrices.....	7	4		6			4	83 per cent. successful. } 85 per cent.
Three superficial cicatrices.....	11		22	3	1			52 per cent. successful. } successful.
Four good foveated cicatrices.....	3			2				100 per cent. successful. } 80 per cent.
Four superficial cicatrices.....	3	1	5	1		1	1	68 per cent. successful. } successful.
Six good foveated cicatrices.....	4				3	1	2	68 per cent. successful. } 74 per cent.
Six superficial cicatrices.....	7		15		3	3	2	77 per cent. successful. } successful.
Persons pitted with variola <sup>1</sup> .....	6		7	3		4	2	71 per cent. successful.
	104	48	151	65	13	26	48	

B.—TABLE OF STUDENTS (50) REVACCINATED NOVEMBER 30, 1875.

CONDITION OF PRIMARY CICATRICES AND RESULTS.

	Success- ful.	No Result.	Total.	Taken Partially.	Perfectly.	Severely.	No Result.	
One good foveated cicatrix.....	10	8		7	1	2	8	55 per cent. successful. } 50 per cent.
One superficial cicatrix.....	8	6	32	5	1		6	57 per cent. successful. } successful.
Two good foveated cicatrices.....	3	1		2	1		1	75 per cent. successful. } 80 per cent.
Two superficial cicatrices.....	3		6	1				100 per cent. successful. } successful.
Three good foveated cicatrices.....	3	1	3	3			1	75 per cent. successful. } 60 per cent.
Three superficial cicatrices.....	4		4	3		1	1	100 per cent. successful. } successful.
Four good foveated cicatrices.....								100 per cent. successful.
Four superficial cicatrices.....	1			1				100 per cent. successful. } 50 per cent.
Six good foveated cicatrices.....	1	1	2				1	77 per cent. successful. } successful.
Six superficial cicatrices.....	1		1		1			100 per cent. successful.
Variola cicatrices.....								
	32	18	50	22	5	5	18	

<sup>1</sup> If we add the student who had variola twenty years ago, and who was successfully revaccinated by me on December 5th, the percentage of successful vaccination of those who were pitted with variola or varioloid would be 75 instead of 71.

C. — AGES OF 152 PRIVATE PATIENTS.

Ages.	Class 1.	Class 2.	Class 3.	Class 4.	Total.	
1-15	22	6	4	16	48	31 per cent.
15-30	26	5	12	21	64	42 per cent.
30-60	11	5	13	11	40	27 per cent.
	59	16	29	48	152	

I was astonished at the number of successful revaccinations, and also at the severe constitutional disturbance attending some, and far exceeding the symptoms which usually accompany primary vaccinations. In attempting to account for the violence of these symptoms, I first turned my attention to the virus used, which was humanized lymph. During the same period, November 1st to December 8th, under the same conditions, and in the same families, with the same virus, I had performed thirty primary vaccinations in children, chiefly under one year of age. The only difference in my vaccination of primary cases was that I made three insertions by scarification, about one fourth of an inch each in diameter, and about one inch apart; while in revaccination I made but one insertion, and that by scarifying a surface whose diameter was from one third to one half of an inch.

All were successful and typical vaccinations, and were not attended by any inflammatory action, save the accustomed areola, and slight constitutional disturbance on the ninth day, except in two instances, and those were brothers, aged respectively eight and ten years of age; in them the inflammation involved the arm, axillary glands, and forearm.

C. P. Brent, M. D., of Cincinnati, had kindly supplied me with the virus, from which I had, by successful vaccination, obtained the stock I used. I called upon him and asked if he could give me the "pedigree" of his vaccine stock, particularly of that which he had furnished me, and also inquired whether any unusual symptoms had attended his vaccinations and revaccinations this season. In reply he stated that his knowledge of his vaccine stock extended back three years, during which time he was accustomed to keep up a fresh supply by vaccinating every two weeks. He said that he was uniformly successful in his primary vaccinations, and had observed nothing unusual in them, but that in his revaccinations he had been struck with the number which were successful this season. Being convinced that the vaccine virus was not at fault, I could think of no other reason for this extreme susceptibility to the vaccine influence, as well as the undue inflammatory expression of its action, than the recognized power of "epidemic influence."

In order to form some idea of the intensity of that power, I applied to the office of the Board of Health of Cincinnati, and learned that dur-



ing the period covered by my observations, from November 1st to December 8th, there had been 1081 cases of variola reported, of which number two hundred and eighty died. This, together with the fact that all the persons revaccinated had been directly or indirectly exposed to the disease, many having the contagion in their families or household, is probably the real cause.

Dr. Brent had observed this great susceptibility in his practice, but had not tabulated his cases. He could not tell what percentage had been successful, but he knew it was far greater than in former years. He distinctly remembered ten cases of revaccination which took as well as primary vaccinations. Seven of these had two distinct marks from their primary vaccinations, and three had one distinct mark each. As an experiment, he vaccinated a child with the crust from the arm of one of these persons, and it took as well as any primary vaccination he had ever seen. To test this latter vaccination, he subsequently inserted fresh lymph from a primary vaccination, and there was no result.

Dr. William Judkins has kindly furnished me the tabulated results of his experience in revaccination during this epidemic:—

Number revaccinated . . . . .	85
“ successful . . . . .	37
“ of failures . . . . .	48

Of those which were successful, about one half took mildly and the remainder severely. Of the above, fifty-five were vaccinated with humanized lymph, and twenty-seven were successful—fifty per cent.; thirty were vaccinated with animal virus, and ten were successful—thirty-three per cent.

Dr. Thomas Wood, of Cincinnati, and Dr. P. M. Williams, of Cheviot, whose observations extend over twenty-five years, inform me that they have never known revaccination so uniformly successful and attended with such high inflammatory action of the arm.

Dr. L. A. Querner, physician of the Cincinnati Workhouse, informs me that he has revaccinated six hundred of the inmates of the workhouse with animal virus, and sixty-seven per cent. were successful.

Of the two hundred and two cases reported by myself, sixty-six per cent. were successfully revaccinated. Of this number forty-three per cent. belonged to Class 1, those who took it partially, and twenty-four per cent. belonged to Classes 2 and 3, those who took it more or less severely.

*The Condition of the Cicatrix.*—One hundred and twenty-six persons had but one cicatrix; of these, sixty-two per cent. took the vaccine. Of those who had good, foveated scars, one each, fifty-six per cent. were successful; of those who had superficial scars, one each, eighty-five per cent.; of those who had distinct marks of variola and varioloid, seventy-five per cent.; of those who had two, three, four, and six cica-

trices, the number is not sufficiently large to warrant an opinion. Nevertheless, as far as they go, they indicate that numerous cicatrices do not give more protection than one.

In one of the revaccinated students, two "supernumerary" vesicles showed themselves, and ran the same course as those formed at the point of the insertion of the virus. One of these vesicles, the most typical one, formed on the inner aspect of the arm at a point where no accident could insert it. Both Mr. Seaton and Mr. Simon say that supernumerary "eruptive" vesicles are extremely rare. These experienced vaccinators are not certain that they have ever seen any, regarding such supernumerary vesicles as they have seen as the result of accidental insertion of virus.<sup>1</sup>

Among the students were two gentlemen upon whom the vaccine virus had never taken. One had had it inserted upon ten different occasions during his life, and the other twenty-two times; the last attempts were by myself, and the results were absolutely negative. There were no cicatrices upon their arms, and they never had had the virus inserted elsewhere. These persons belong to an extreme and small class who are, for the time being at least, *insusceptible* to vaccinia or variola. On the other hand there were two cases illustrative of the opposite extreme and exceptional class, those whom neither vaccination nor variola will protect from a future attack of variola, namely, the extremely *susceptible* class. The first of these cases was a boy of twelve years, having a good primal scar, in whom the secondary vaccination took well; yet on the twenty-first day, and whilst the crust was still adhering to his arm, he broke out with a well-marked but very mild case of varioloid. The scabs of the pustules were scarcely dry before he had a typical attack of measles; he is now well. The other case was a student, thirty years of age, who was vaccinated successfully in 1863 (primary) and has a good, large, foveated scar. On the eighth day of my revaccination of him, there was a vesicular eruption at the point of insertion, confluent and rather flattened in appearance; the areola, or rather the irregular inflammatory action, extended full two inches from the point of insertion. He felt quite feverish that evening, and returned home and went to bed, where he remained until discrete variola made its appearance three days after, and ran its course without any modifying influence from his primary or secondary vaccinations.

Dr. Snow, Health Officer of Providence, R. I., one of the ablest and oldest sanitarians of our country, and one who has given the most systematic attention to vaccination, is reported as saying<sup>2</sup> that "in all his experience he had never seen a perfect vaccination produced a second time in the same person." I have presented to the Cincinnati Med-

<sup>1</sup> Seaton's Handbook, page 96.

<sup>2</sup> Boston Medical and Surgical Journal, 1871, page 342.

ical Society, at its regular sessions, December 7th and 14th, over twenty students whom I had revaccinated, the evenings on which they were displayed being the eighth day of their vaccinations. The members have seen and can decide for themselves how typical their vesicles were. I wish particularly to call your attention to the arm of Mr. La Rue, whom I exhibit this evening, December 14th. He is just now entering upon the ninth day of his revaccination. You will observe that the vesicles are full, pearly, and umbilicated; the areola is now about one inch in diameter, and if there is a single indication of a perfect, typical primary vaccination wanting, I shall thank any member to call attention to it. Within one inch of these vesicles, you will observe the cicatrix of his primary vaccination. It is unusually large and deeply foveated; it is what may be termed a "superior mark." I also invite your attention to the arm of Dr. Fletcher. This is the eighth day of revaccination. You will observe that it has most of the traits of a primary vaccination. He had varioloid twenty years ago, and bears the mark of it.

The ages of my one hundred and fifty-two private patients ranged from five to sixty-four years of age. About seventy-five per cent. were under thirty, and over fifty per cent. were between the ages of twelve and twenty-five, corroborating the conclusions of previous observers that puberty often reestablishes a susceptibility to the vaccine influence. The average age of the fifty students was twenty-three years.

These observations may not justify any conclusion which eminent vaccinators have not already announced; yet so important is the subject, and so wide-spread the interest in it, that it will do no harm to call the attention of the profession to them.

I think a careful examination of the cases reported will warrant the following

#### CONCLUSIONS.

(1.) Exposure to infection and to intense epidemic influence largely increases the susceptibility of the system to the influence of vaccine virus, and accounts for the unusual number of successful revaccinations during the existence of an epidemic.

(2.) Variola and varioloid give no more protection from a recurrence of variola than vaccination.

(3.) The cicatrix is not a safe criterion of the degree of protection given by the vaccination from which it resulted.

(4.) It is advisable to revaccinate upon every exposure to infection, unless it has been done recently with success.

(5.) Those who are successfully revaccinated are to some extent susceptible to the variolous influence; not that all would take the infection (for an epidemic never attacks all the unprotected), but that they are in some danger is proven by the results of revaccination

in the hospitals and standing armies of Europe. In the Prussian army the annual deaths from small-pox, before revaccination was introduced, averaged one hundred and four. During the twenty years immediately succeeding the establishment of systematic revaccination, there were but forty fatal cases, and Simon says but four of them had been successfully revaccinated. Mr. Simon further says that since revaccination was made compulsory in the Bavarian army, in 1843, absolutely no cases of variola have occurred.

Mr. Seaton, in the Public Health Reports, 1873, says, "In every hospital report which has reached me, it is specially stated that not a single one of those officials (attendants amounting to more than three hundred) who have been revaccinated before coming to take duty at the hospital contracted small-pox, but a few cases occurred in nurses and servants who were not vaccinated."

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## RECENT PROGRESS IN THE TREATMENT OF CHILDREN'S DISEASES.

BY D. H. HAYDEN, M. D.

*Diphtheria.* — The following is an abstract of remarks upon diphtheria made by Professor Henoch at a meeting of the Medical Society of Berlin, held February 10, 1875.<sup>1</sup>

The diphtheritic exudation, or process rather, is distinguished anatomically from the croupous by the fact that the former penetrates into and infiltrates the mucous membrane, whereas in croup the membrane is deposited upon the free surface of the mucous membrane. This distinction is not always a valid one, however, for it is a well-known fact that both forms are often met with in diphtheria in the same patient, the infiltrated (diphtheritic) mass being found in the pharynx, extending downward, sometimes as far as the vocal cords, while at the same time the bronchial tubes are covered with a loose membranous deposit (croupous).

We find it stated, too, by many good authorities (by Rilliet and Barthez for example), that the so-called croupous membrane does not always lie loosely upon the mucous membrane. When situated in circumscribed patches upon the larynx or trachea it is often found attached by fine adhesions to the subjacent tissue, necessitating a tearing of the membrane on its removal.

It happens not very rarely that in diphtheria the membrane in the pharynx is not entirely diphtheritic. Professor Henoch reports such a case. It occurred at a time when cases of diphtheria were coming into the wards nearly every day, and resembled the others in all its clinical

<sup>1</sup> Allgemeine medicinische Central-Zeitung, Nos. 66 and 67, August 18 and 21, 1875.

features. At the autopsy there was found a croupous deposit on the mucous surface of the larynx, especially in the neighborhood of the vocal cords. A deposit of the same character lay loosely upon the tonsils, being easily removable without loss of substance of the subjacent tissue. The tonsils were found on section to be infiltrated with a yellowish-white exudation. Henoch considers this case to have been one of diphtheria, notwithstanding that the membrane anatomically differed from that characteristic of this disease.

Croup, that is, the development of the croupous membrane in the larynx, was formerly described as an independent disease. In the Transactions of the Medical Society of Berlin, a few years ago, there was shown to be a difference of opinion as to the existence or non-existence of a primary croup, the older physicians considering it a fixed fact, the younger ones, on the contrary, holding that croup was always diphtheritic. An explanation of this difference of opinion is to be found in the fact that the experience of the former reached back to a time when diphtheria was of much rarer occurrence than it is now, or was never seen.

Professor Henoch, while convinced that cases of primary fibrinous croup do occur, admits that errors of diagnosis are easy, as, for example, where the diphtheritic membrane is situated on the posterior surface of the velum palati, or on the lowest portion of the pharynx. In such cases, inspection of the pharynx would show no membrane, and croup suddenly coming on, a mistaken diagnosis of primary croup could easily be made, the diphtheria in the pharynx being overlooked. An examination with the laryngoscope would, it is true, reveal the pharyngeal trouble; but the use of this instrument with infants is accompanied with great difficulty, and not often practicable. Such errors in diagnosis would be more likely to occur in hospital practice, where children while convalescing, or while sick with other diseases, contract later a diphtheria. How can such cases be recognized? The disease for which the patient entered the hospital presents symptoms so prominent that the first signs of a supervening diphtheria are generally not recognized until suddenly the symptoms of croup present themselves. To guard against error it would be necessary that every child in a hospital should be daily subjected to an examination of the pharynx, a practice much easier to advise than to carry out.

There will always be skeptics as to the existence of a primary croup, even should they meet with a case where the autopsy showed absence of disease in the pharynx. They would explain this with the assertion that it is not necessary that diphtheria should always affect the pharynx; that it can be situated primarily in the larynx, the pharynx remaining throughout unaffected.

To prove the existence of a primary croup there must be found a

disease characterized by a disposition to produce constantly a laryngeal and tracheal catarrh. Should there be developed from such a simple laryngeal catarrh a croup without any coexisting affection of the pharynx, this could only be regarded as an advanced stage of the catarrh, a so-called "plastic croup." Such a disease we have in measles, one result of which is always a laryngeal and tracheal catarrh. If now, in the stage of eruption, this catarrh, which is always present, takes on a croupous character, and at the same time the pharynx remains free, it cannot be denied that this is a primary inflammatory croup developed out of a simple catarrh.

The following case is reported as illustrative: A boy, three years old, was admitted into the hospital with measles in the stage of efflorescence; the disease had just made its appearance in the face; the temperature in the evening was  $105^{\circ}$ , the following morning  $103^{\circ}$ ; the characteristic laryngeal catarrh was so severe as to suggest the idea of a true laryngitis; inspection of the throat showed a simple angina with the eruption on the pharynx and soft palate; improvement had begun, and lasted four days, during which time there was no fever; suddenly in the evening there was a rise in the temperature, and during the night croup became developed. On the following day tracheotomy was performed, and a long membranous cylinder was removed from the opening which had extended below the bifurcation; still later, other portions of membrane were coughed up; on the tenth day the tube was removed, and the patient regarded as cured.

Such cases show, without doubt, that a complete croup can be developed out of a simple catarrh. At the same time, in proportion to the number of cases of infectious diphtheria, croup is met with extremely rarely.

In conclusion, for the treatment of paralysis following diphtheria, the subcutaneous injection of strychnia is highly recommended. The cure is thus made more speedy, although it is admitted that with time and patience the disease gets well spontaneously. Two cases thus treated are reported. In the first, a young girl eleven years old had in all six injections given on alternate days, in doses of one thirtieth of a grain. The patient had been taking previously iron and quinine without result. The second case was that of a boy ten years old. Ten injections in all were given, the first one forty-fifth of a grain, the other nine one thirtieth of a grain each. In both cases the injections were made in the back of the neck. There were no unpleasant after-effects. The rapidity of the disappearance of the paralysis after the beginning of the injections was a sufficient answer to any claim that the cure was a spontaneous one.

Professor Henoch has used these injections with children in a large number of cases not only of diphtheria but also of prolapsus ani; and

with proper precautions there is not the slightest danger of any injurious after-effects. This treatment is also highly spoken of by Dr. Acker, of the Clinique in Erlangen,<sup>1</sup> and by Professor Demme, of the Children's Hospital at Berne.

Dr. J. Lewis Smith, in an article upon diphtheria,<sup>2</sup> draws the following conclusions: Clinical observations, of which during the last fifteen years there has been a great abundance, do not substantiate the theories advanced by Oertel, Buhl, Hueter, and other experimenters, that diphtheria is caused by bacteria. The author considers the cause of diphtheria to be something more subtle than the existence of these parasites, a substance not yet discovered, which so alters the tissues and the blood that these become a nidus in which the bacteria are easily and quickly developed, so that from being few and innocuous in the system, they occur in myriads.

Diphtheria, in most instances, is at the start a local malady, occurring from the lodgment of the diphtheritic poison at some point upon the mucous membrane, or upon the skin denuded of its epidermis, or upon an open sore. When thus localized it may by proper local treatment, applied early, be cured, and the system remain unaffected.

When the disease has a local commencement and the system becomes infected, this result occurs by the absorption of some of the morbid product, through the absorbents, or capillaries, or both, which connect with the seat of disease upon the surface. What this substance is which thus infects the system and produces the constitutional symptoms of diphtheria is unknown; and the relations of this substance to bacteria on the one hand and to septic poison on the other must be determined by future investigations.

There can be little doubt that the diphtheritic poison sometimes enters the system through the lungs in inspiration. Two modes of systemic infection are thus recognized: by inoculation upon one of the tegumentary surfaces, and through the lungs; modes in which other acute infectious diseases, as scarlet fever and measles, can be communicated.

It is customary to classify diphtheria with the acute infectious diseases. There are some points of difference however. It often occurs, for instance, in a secondary as well as in a primary form. Instead of being incompatible with other distinct morbid processes, diphtheria sometimes engrafts itself upon them. In New York, most cases of secondary diphtheria occur as complications of scarlet fever and measles. An interesting fact has been several times observed by the author, that diphtheria originating upon the inflamed surface in scarlet fever or

<sup>1</sup> Allgemeine medicinische Central-Zeitung, No. 18, 1875.

<sup>2</sup> American Journal of Obstetrics, August, 1875; also Diseases of Children, third edition, just published, by the same author.



measles may become dissociated, and spread as an independent malady. Thus, in one family, three children affected with severe anginose scarlet fever took also diphtheritic pharyngitis before the efflorescence on the skin had disappeared. A few days subsequently, diphtheritic pharyngitis appeared in the father without scarlet fever.

There is no doubt that there is a membranous croup quite distinct from diphtheria. At the present time, when the diphtheritic poison is so abundant in the atmosphere, we have certainly few cases of membranous croup which are not diphtheritic or do not become so. The explanation of the comparative infrequency of membranous croup may be that the exudate of true croup, by offering a nidus in which the diphtheritic virus lodges and multiplies, becomes transformed into a diphtheritic inflammation, just as we see scarlatinous pharyngitis become diphtheritic.

From the above views of the author as to the pathology of the disease, we should naturally expect to find an early topical treatment recommended as of the utmost importance. Clinical observations teach us that the gravity of this malady is in most instances proportionate to the severity of the local manifestations, at least in the commencement of the disease. If, therefore, we can limit the exudation to a small surface, or can remove it so that the inflammation from croupous becomes catarrhal at an early stage of the disease, the patient is probably safe. We destroy thus also the very inoculable specific virus contained in the diphtheritic membrane, the source of the greatest danger we have to contend against, namely, the communication of the disease to others; auto-infection is also prevented, for it can hardly be doubted that diphtheritic laryngitis, to which patients are so liable, not unfrequently originates from a transference of the virus from the surface of the pharynx to that of the larynx during inspiration. Another result which the author expects to accomplish by the local use of disinfectants, is the prevention of blood poisoning, whatever that poison may be, — bacteria, or a secretion of the bacteria, or a substance which is developed independently of these organisms, though associated with them.

Local treatment should not be painful. The day of escharotics and powerfully irritating applications has passed; and the expression "burning the throat," so often heard in families, is a misnomer as applied to the treatment of the present times. It is best not to attempt to tear off the membrane, for its forcible separation irritates the inflamed surface and provokes hæmorrhage. In applying a disinfecting substance the object should be to make it penetrate the pseudo-membrane, and, if possible, to touch and bathe the surface underneath.

In the Catholic Foundling Asylum of New York, to which Dr. Smith is attending physician, diphtheria prevailed during 1874 and up to June 1, 1875. The sisters detect the initial symptoms, and have

begun the local and general treatment before the daily visit of the physician. In the first five months of 1875, thirty-two cases occurred. Of these, only six ended fatally; three of laryngitis, and three of blood poisoning.

The mode of treatment employed with so good results, and by which the author, in his private practice, has saved a much larger proportion of cases than he had been able to cure by any other measures which he had previously employed, was the following: As soon as the case comes under observation, the following mixture is applied every second or third hour over the fauces by one or two applications of a large camel-hair pencil:—

Acidi carbolici . . . . .	gtt. vj.-x.
Liquoris ferri subsulphatis . . . . .	3 iij.
Glycerinæ . . . . .	3j. M.

If there is discharge from the nostrils indicating diphtheritic inflammation of the Schneiderian membrane, a little of the same mixture diluted with an equal quantity of warm water is injected into each nostril every three to six hours. To do this, the child is placed upon its back, with the head thrown backward and the eyes covered with a towel, to prevent the liquid from entering them. A small glass ear or nostril syringe, with a knob or button at the end of the nozzle, is the best form of instrument for these injections.

One third to one half of a teaspoonful of the diluted mixture is a sufficient quantity to employ for each nostril. This application, properly made, prevents decomposition, removes the offensive odor, and, that which is of the greatest importance, prevents blood-poisoning; it immediately arrests the movements of the bacteria, and probably destroys them, as the author has observed in experiments with the microscope.

Quinine in doses of one to two grains, according to the age of the patient and severity of the case, is administered about every fourth hour, and each hour in the interval half a teaspoonful to one teaspoonful of the following:—

Potassæ chloratis . . . . .	3j.-ij.
Tincturæ ferri chloridi . . . . .	3j.
Syrupi simplicis . . . . .	3 iv.

A little chlorine is set free in the above mixture, and the quantity may be increased by adding a few drops of dilute muriatic acid. No drinks are to be allowed for a few minutes after its administration, or after the use of the brush; by this precaution, the lotion is not washed away too quickly from the fauces.

In three or four days, if the case progress favorably, these remedies are employed less frequently, but they are continued until not only the pseudo-membrane has disappeared, but the inflammation also has in great part abated. When the inflammation has begun to abate, and there is no reappearance of the exudation, a gargle or drink of chlorate

of potash in water usually suffices for topical treatment. In the treatment of laryngitis, no mention is made of tracheotomy. In diphtheritic paralysis, the author employs the elixir ferri, quiniæ, et strychniæ phosphatis, each drachm of which contains one sixtieth of a grain of strychnia; and by dilution with water the proper dose can be given to a child of any age.

If diphtheria occur in a family, not only is isolation from the other children imperatively required, but the fauces of these children should be examined daily, and if the least evidence of inflammation appear, the treatment recommended above should be immediately employed.

The author thinks favorably of quinine as a preventive in children who are so exposed to the diphtheritic virus that there is a strong probability that they will contract the malady, although the surveillance of the state of the fauces and the employment of special remedies is the most important.

As to the contagiousness of diphtheria the author writes. "Though observing and treating diphtheria, both in its epidemic and in its sporadic form, during the last fifteen years, I have not observed an instance in which it seemed to be communicated from house to house by the clothing, as we frequently observe in cases of scarlet fever and sometimes of measles. When it spreads from house to house, or even from room to room in the same house, I think that it is almost always by the visits of persons having diphtheritic inflammation. The area of contagiousness of diphtheria is therefore limited to the room in which the patient resides, or to his immediate vicinity."

(To be concluded.)

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#### THE AMERICAN NEUROLOGICAL ASSOCIATION.

THIS octavo<sup>1</sup> of two hundred and fifty-seven pages is the result of the first convention of a society which we hope has before it a useful future in the way of stimulating both theory and practice in the difficult field of the nervous system. The volume contains a brief report of the proceedings, and twenty essays printed in full. The majority of these contributions are casuistic, but none are of trivial interest. A case of left hemiplegia, in which nothing was found but a clot on "the frontal convolution" of the same (left) side, may reasonably be doubted, since the reporter, Dr. Walter Hay, of Chicago, admits the examination of the brain to have been very imperfect. A method of treating paralysis by elastic relaxation of the muscles seems, in the hands of Dr. Van Bibber, of Baltimore, to have had good results. Dr. N. B. Emerson, of New York, states that the effects of free phosphorus cannot readily be obtained unless the remedy is given in larger doses than are often ventured

<sup>1</sup> *Transactions of the American Neurological Association for 1875.* Edited by F. P. KINGS-CUTT, M. D., and T. A. MCBRIDE, M. D. Vol. I. New York: S. W. Green, Printer. 1875.

upon by timid practitioners, say from one twelfth to one eighth of a grain three times daily. Dr. A. McL. Hamilton describes a new form of hand dynamometer as both simple and accurate.

The longest paper in the book is by Dr. Schmidt, of New Orleans, on the general anatomy and action of the nerve-tissues. His complex unraveling of what are avowedly among the most difficult structures in the body to understand would command more confidence if he had described his methods of examination. The so-called ganglionic cell is, according to him, not a simple cell at all, but a plexus of fine axis-cylinder fibrillæ surrounding a "nucleus," and continuously passing in at one process and out at another. The "nucleus" is truly the cell; its "nucleolus" is the true nucleus, and contains two real nucleoli. This cell, not being continuous with the fibrils, cannot be supposed to take part in reflex action. Dr. Schmidt suggests that the influence of the fibrils may be simply trophic or formative; they may be "the central points or poles from which the tissue starts in its process of development out of a formless plasma, and which, after the development of the latter, superintend their normal waste and repair." The proper agents of the nervous reflex are the granules which are everywhere inclosed in the meshes of an exceedingly minute reticulation, which Gerlach has described in the gray matter of the cord, and which Dr. Schmidt has found in the most peripheral portion of the cortex of the brain. This reticulation results from the subdivision of most of the processes of the so-called nerve "cells," and is the channel by which alone the different nerve-fibres communicate with each other. All we can say is that Dr. Schmidt's results are very important *if true*, but that there are very few men living sufficiently skillful either to vouch for them or to reject them with plenary authority.

Dr. Webber, of Boston, gives a valuable Study of Myelitis, and Dr. J. J. Putnam, of Boston, *apropos* of a case of analgesia, gives good reasons for supposing that the different specific forms of general sensibility correspond to so many different modes of activity of the same nerve-fibres, and not to so many distinct sets of fibres, each with its own "specific energy," as has been supposed by Brown-Séquard and others. The article is a learned one, perhaps somewhat overcharged with learning, but it shows what may be made of a single case by "thinking it out."

When we add that there are papers by Dr. Hammond and by Dr. Lente, we have said enough to prove that the new society has made a creditable start.

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### MEDICAL EDUCATION IN GERMANY.

In a recent number we had occasion to allude to the absence of material changes for the better in the annual announcements of the various medical schools of this country. It is well for those contemplating changes to bear in mind that a fixed standard has by no means been reached elsewhere, and that even in Germany the leading minds are on the alert with reference to modifications which may lead to further improvement. Professor Billroth has lately published a volume,<sup>1</sup> the most comprehensive contribution that the cause of medical education has yet received.

<sup>1</sup> On Teaching and Learning the Medical Sciences in German Universities.

So experienced and accomplished a teacher has much to suggest, and many points are presented which concern all workers in so important a field. We select a few of the more general and fundamental ones to present to our readers, merely as suggestions, however, as any discussion of them would entirely exceed our limits. They are as follows: The physician should be thoroughly educated. In order that this may be brought about, time and money are indispensable, talent is desirable. Four or five years should be required as the least limit, and such persons as do not possess more than a certain amount of money, training, industry, and talent are earnestly advised to abstain altogether from the study of medicine. Those who have not sufficient money undertake a life of misery. Moderate talents and limited means do not permit the development of the talent, when so much time is demanded before the means can be increased.

From the first, the highest possible scientific education of the physician is demanded, for the methods thus obtained are those afterwards to be employed in the interest of the patient. Simple, exact observation is usually acquired only after much labor, and the earlier the training is begun the better are the results obtained. The study of the natural sciences should therefore be early entered into as an important part of the student's general education.

As a part of medical education there should be a certain limitation to their further pursuit. In chemistry one should go so far only as to acquire a moderate degree of technical skill, leaving advanced courses in animal, physiological, pathological, and forensic chemistry, as well as in chemical toxicology, for those who may be specially interested in those branches. The same applies to what may be called medical physics. The study of those subjects, together with that of botany, mineralogy, and zoölogy, should cease before the purely medical subjects are entered upon, though the departments should not be separated from those belonging to medicine in the more limited sense. The work thus laid out should not occupy more than the first year.

The remainder of the period suggested is to be given up to the various departments of medicine. These are anatomy, physiology, general pathology and pathological anatomy, *materia medica* and pharmacy, special pathology and clinical medicine, surgery and clinical surgery, obstetrics and clinical obstetrics, ophthalmology with clinical exercises, and social medicine, under which term are included medical jurisprudence, sanitary medicine, and hygiene.

In all these branches systematic study, for the sake of training, is absolutely insisted upon. This training can be acquired during student life only, and the scientific spirit then aroused is often destroyed by too early a development of routine practice. Billroth regards the results of this training as the level of mental life and feeling at which the individual is to live and move during his entire subsequent career. The necessary routine work may be acquired in six months of practice.

The faculty should be composed of a professor for each of the nine departments mentioned. These should be supplied with laboratories, collections, and assistants. The clinics should likewise be under the control of the university. The faculty should be neither increased nor diminished. A large one loses unity of action, the effect of each member upon the rest is enfeebled,

and the interest of the whole becomes blunted. In a smaller faculty, if harmonious, certain subjects are neglected; if not harmonious, discord and confusion result. When vacancies arise they should be filled by the remaining members. Assistant or adjunct professors, if admitted, disturb the proper balance by giving undue prominence to the department they represent, thus conflicting with the interests of other departments, giving rise to irregularity of work, and leading to dissension and indolence.

One other point treated of is of so much importance that with it we close our reference to this invaluable work. This is the relation of special departments to general ones. Systematic lectures on general medicine and surgery are essential as preserving a broad view of the subjects treated of. The existing tendency to solely demonstrative special courses destroys comprehensive scientific teaching, and encourages attention to the purely practical alone. The general clinics should be thoroughly such, and should contain all forms of disease. In the medical clinic, for example, the student should see in constant daily use the various instruments of precision in diagnosis, whether the laryngoscope, the ophthalmoscope, the battery, or the stethoscope. In the surgical clinic he should find patients with diseases of the skin, of the larynx, of the genitals and sexual organs, as well as with fractures and dislocations, cuts and bruises.

If sufficient material exists for the establishment of special clinics, there is no objection to their presence, but similar cases should not be lacking in the general clinics. The student is thus enabled to see the clinical professor as a complete whole, whether he directs the surgical or the medical department.

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#### MEDICAL NOTES.

— Professor Billroth has lately written an article on medical education in Vienna, reflecting somewhat severely upon the present system of teaching as practiced in that city, as well as upon a certain class of students who frequent that school. This class consists chiefly of poor and uneducated Jews. The book has excited great criticism in the Vienna journals, which are edited chiefly by the Jews, has naturally caused much indignation among some of the students, and, we believe, has been the subject of discussion in the Austrian house of representatives. The excitement finally culminated at an ovation arranged for the professor by his friends. The opposition party, being strongly represented, raised a vigorous hiss, and both sides finally came to blows. A rough-and-tumble fight ensued, and order was with great difficulty restored. The affair has caused much excitement in Vienna. We notice this week at length Billroth's article, which is an able contribution upon this important subject. It may be a consolation to American physicians to know that they are not contending alone against the evils of slovenly methods of education. The advocates of the "preliminary examination" will, on the other hand, feel much encouraged by this able testimony to the folly of attempting to promote an ignorant class of men to a learned profession by means of a medical diploma.



— We would call the attention of our readers to the plates recording the pulse and temperature curves, appearing in the present number. The advantages of such a method of illustration could hardly be better demonstrated than in the present case. These plates are so arranged that by a simple device they can be made to record any set of curves desired.

— The students of the University of Vienna have formed a society for scientific purposes, to the membership of which the professors are likewise admitted. The last report of the society, giving an account of its proceedings from April to November, 1875, shows that forty-six professors have enrolled themselves as members. By contributing fifty florins, the donor receives the title of founder (*fondateur*). There are numbered in the society thirty-one honorary members, thirty-two founders, fifty-two assistant members, one hundred and fourteen professors, and four hundred and ninety-nine students; total, seven hundred and twenty-eight. The library of the association has two thousand seven hundred and ninety-nine volumes. A room is especially devoted to periodicals.

The facilities afforded by the society for the perusal of periodicals are considered of great value. The students have an excellent opportunity for study and research. Science, which in our day goes at a very rapid pace, is to be found first in periodical publications before appearing in books. It is therefore indispensable, if one wishes to keep constantly advised of scientific movements in the various parts of the world, that he should have at his disposal a great number of periodicals, and have them not at the end of the year when they are complete in volumes, but at the time of their publication.

The Germans have of late entered enthusiastically into the work of increasing the scope of their public libraries. At Berlin the Royal Library furnishes to its readers, who include the men who are first in science, more than eight hundred periodicals and scientific journals. The University of Göttingen and the Academy of Music at Geneva afford similar advantages.

— Under the heading Notes on Fiji, *The Lancet* gives some particulars of this recently acquired British colony. The Fiji Islands are about two hundred and fifty-five in number, eighty of which are inhabited. The most important are mountainous, rising from two thousand to four thousand feet above the sea level, with unusually large rivers and extensive deltas at their mouths. The present white population is estimated at two thousand, seventeen hundred of, whom are British subjects, and the rest German and American. The mean temperature is from 78.9° to 80° Fahr. Hitherto Fiji has been extraordinarily free from tropical diseases. Yellow fever, cholera, ague, and remittent fever are unknown, rheumatism is rarely heard of, and the venereal diseases are very rare indeed, as intercourse between the Fijian women and the white men is almost unknown. "Kara" drinking induces some amount of delirium tremens. Influenza is occasionally endemic and productive of considerable mortality among the natives. Diarrhoea and dysentery are the only diseases at all common or severe, and they seldom assume an epidemic form. The most active agent in the production of dysentery seems to be the water, which in periods of dry weather becomes scarce and strongly impregnated with decomposing vegetable and animal impurities, an evil which is increased by



the neglect of all sanitary laws and precautions. A peculiar skin disease called "coka" exists to some extent among the natives. It is non-febrile, consisting of numerous ulcerated tubercles raised considerably above the level of the skin, and situated most commonly about the angles of the mouth, but also affecting all parts of the surface of the body. The tubercles vary in size and shape, and may number from two or three to as many as fifty in the same subject. Children under three years of age are almost invariably affected with it. Elephantiasis is somewhat common among the natives of certain islands. As to the effect of the climate on the white population, it appears that the resident settlers, as compared with new-comers, are distinguished by a spareness of frame, a somewhat sallow complexion, and a hard keenness of expression akin to the American type.

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#### LETTER FROM WASHINGTON.

MESSRS. EDITORS, — A sufficient time having now elapsed to allow a careful and thorough microscopical examination of the spinal cord of the late Vice-President Wilson, nothing remains to be added to what has already been published with regard to the case, save that in the cord there were found a considerable number of amyloid bodies, and that the line of demarkation between the gray and the white substances was not well defined.

The only active interest which the profession here has manifested, so far, in the coming Centennial, apart from the sending of delegates to the annual meeting of the American Medical Association, has been in the appointment of Dr. S. C. Busey to the International Medical Congress. But a general interest in its objects and aims has been manifested, and the city of Philadelphia is within such easy access that in all probability a goodly proportion of the profession will be in attendance.

We are not behindhand in this city with regard to the prevention of cruelty to animals; while New York has its Bergh, Washington has its Gatchell, a fact which has been brought to the notice of medical men on being called to testify as to the possibly injurious effects of early training in gymnastic exercises. This seems to have been the question at issue in a case where a boy nine years of age was taken from those who were his guardians, athletes by profession, and who were exhibiting with him at a place of amusement in this city. Evidence showed, if we may trust to newspaper reports, that these men were his relatives, and that the boy was fond of his mode of life and did not consider his training in the light of cruelty; in fact, when the order came from the judge to separate the lad from his guardians, the scene is said to have been very affecting. This left simply two points to be considered: the peril to life and limb in these exercises, and the injurious effects of training upon so young a constitution. The first was evident, but not more so than may be shown daily in the gymnasiums of our large cities and with boys of a larger growth, with whom these possible injuries might lead to more serious results. So that the question resolved itself simply to one of training, and it is curious to note that we do not possess among our English text-books any formularized data to throw light upon this subject. The physical training of young men, college

students for example, has engaged the attention of our English brethren with reference to derangements of the circulatory system; and Da Costa, in one of the Toner lectures, has given us valuable data on the same subject. Flint, in his *Physiology*, discusses training, it is true, more particularly, however, in relation to the subjects of food and the development of muscular tissue; but he handles his topic in such a manner as to make us wish for a more systematic and special treatise from his pen. Indeed, it is a question which comes home to many of us, whether we are not inclined to foster that spirit in boys which leads them to seek high places and attempt perilous feats for the sake of the steadiness of nerve and the self-confidence thus acquired; and nine years is about the age at which we send boys to the gymnasium, where they soon learn to perform feats that to the uninitiated appear perilous and injurious in the extreme. Stewart's gymnasium in your city (if it has not long since become one of the things of the past) could show among its records the names of many boys of tender age who were expert gymnasts. In the case above alluded to the evidence did not show excessive training, so that we question the propriety of the action of the bench. Of course public sympathy was with the judge, for the place of amusement was itself of that class which gratifies a low order of taste, and it is easy to excite sympathy without reason in such cases.

With regard to Columbia Hospital, since our last communication the directors have selected a list of names from the profession to act as an advisory board, and among them are representatives from the faculties of both medical colleges; the list is very well selected, save that there has been an almost total ignoring of the dispensary staff, members of which have served the hospital for years, and even independently of this are equally deserving of recognition. The action of the directors has a salutary look, but whether it means more than the conferring of an empty title, as in times past, remains to be seen. There is, however, this difference: formerly the surgeon in charge made the appointment; now the directors assume that duty, and lay down well-defined rules for the guidance of the staff.

The medical profession here, owing to a combination of unfortunate circumstances, attained in times past an unenviable notoriety. Unfortunately, a storm of troubles culminated at the date of the last meeting here of the American Medical Association, in 1868. This being a border land, as it were, where were settled men from both sections of the country and having markedly opposite opinions, and where the first essays in the solution of political problems were attempted by those in power, it was natural that dissensions should arise. Now, however, it would seem as if a unity of purpose pervaded the profession for the common advantage. Among those with what are called the advanced ideas of the present day there are still objects to be attained which, if pressed too forcibly and persistently, would again cause the bubbles of toil and trouble to rise to the surface. With judicious discretion these men are quietly working their way and gaining ground with time. The two questions of color and sex have still many prejudices to contend against.

The organization of the societies here is curiously constituted. In 1819 the Medical Society of the District of Columbia was chartered by Congress, a right being granted to license practitioners of medicine within the District

under certain conditions, and this license being made the only authority under which suits for fees, etc., could be recovered at law. A distinction was made also between licentiates and members, the former not having the privilege of attending the discussions of the society, except upon invitation; but at the same time the society was denied the power of governing in any way the ethics of the profession. Consequently, to meet this last want, there was established, in 1833, the medical association, a voluntary organization independent of Congress, and designed to regulate the fee-bills and the ethics of the profession here. One of its rules is to the effect that after a practitioner shall have been six months a resident of the District, he shall not be entitled to consultations until he becomes a member of the association. Now, with regard to the colored race, of which we have several of fair standing in the profession, they are licentiates of the Society, but not members; for a membership they must wait until the members look upon them as suitable companions; they are deprived of nothing except the privilege of discussion, and when admitted to membership they will be admitted because of personal qualifications, and not as a body. In the association, on the other hand, there is a different condition of things; exclusion from this body means a denial of recognition in consultations and of the common privileges of medical etiquette; but here, instead of the admission of these colored men to membership, a saving clause is put in, permitting consultations with them. A singular discrepancy or inconsistency is evident here, which does not seem to be worthy of the association; on the one hand, while it will take no steps to bring these men under its control, it allows them all the privileges of the association that are worth anything; on the other hand, because of prejudice, it breaks through a rule which is the foundation of the association. It would seem as if the colored doctors had rather the best of it.

As to the female doctor, she is nowhere; a licentiate, and that is all. And there must perforce be ere long an agitation of this question; it has been brought up before, and the sentiment grows each time more favorable to a recognition of woman's rights and privileges. There are not many female doctors in this city, but there are some who are women of refinement and culture. One of them, not long since, while complaining of the false position in which she stood, was heard to say that she "could get plenty of doctors to consult with her, but they were not of the class whose opinions she desired." Many of these very men had been loud in their opposition to her admission to the association.

Our medical society is by no means instituted for mutual admiration; on the contrary, the discussions frequently are long and furious, with an occasional dash of personality which leads eventually to explanations and counter-explanations. If we may be permitted to be critical, certain practical amendments might be introduced which would tend to improve it; among these is a strict adherence to the rule requiring the announcement beforehand, when practicable, of papers and specimens to be presented, so as to allow a proper preparation for debate. This is opposed by some who pride themselves on being ready speakers and on having a wide range of knowledge, but this opposition is injurious in a high degree to the earnest man who wishes to be sure of him-

self and of his subject. Again, the reports at stated intervals of the progress of medicine in some special line, by those more expert than the general practitioner, would, as in other societies, increase greatly the general knowledge. This society, however, is doing good work, as is shown by its Transactions, published quarterly; its meetings are well attended, its discussions are earnest, and its pathological specimens are accumulating. We say accumulating, but we do not mean in the sense of preservation in the society's own museum; the Army Medical Museum absorbs everything, for there is no other collection of pathological specimens in the city, save a few straggling remnants, in the National Medical College, of what was once a valuable museum, but which time and want of care have scattered. When the Washington Infirmary was burned, there was no property of any consequence belonging to the college within its walls.

It is interesting to note in this connection the influence of the army medical department upon the profession. We are greatly to be envied in having access to so complete a collection of medical works as the library, to so full a collection of pathological specimens as the museum; but, on the other hand, if a post mortem is to be made, one of the employees of the department performs it, and secures the specimen. This has been so long the custom that but few of the men who date the beginning of their practice a few years back have any experience in post-mortem examinations, or will trust their own skill; nor do they ever think of preparing or preserving specimens. To be sure, we know that the work will be well done by the army surgeons, and that the specimens will be duly appreciated. But these specimens become the property of the government, and access to them is restricted to such regulations as the medical officer in charge may from time to time see fit to make. Again, the great majority of microscopical examinations are made by or under the supervision of Dr. Woodward; this is a great advantage for microscopical science, but it diminishes the stimulus to individual workers. The library is open from ten to three o'clock, but the books cannot be removed; these hours are the busiest with most practitioners, and, were they not so, it is difficult for those who are in the habit of closeting themselves in their studies to pursue those studies amid the disturbances incident to a large library. It is true that the gentleman in charge, Dr. Billings, is remarkably courteous in relaxing the rules and giving every aid possible under suitable circumstances; but this is a personal favor and cannot be otherwise, and one cannot help questioning what would be the effect of a change in the ordinary routine of army duty; perhaps the new librarian would not be so favorably disposed.

In practice during the war there was the singular anomaly of army officers and soldiers employing civil practitioners and paying their fees because of a want of confidence in the army surgeon, and civilians employing the army surgeon because they thought him more skillful than any one else. The population here is largely made up of army and navy people, who, with their friends, employ army and navy doctors; these friends were very numerous at one time, and got their advice and medicine free. This latter gratuity has been stopped or placed within narrow limits; but advice is still given, and, no fees being charged, the effect is apparent.

Another element which is a heavy load for the profession to carry is the number of clerks holding office who are practitioners of medicine; they try to justify themselves by saying that as soon as their practice warrants it they intend to resign.

HOMO.

WASHINGTON, D. C., January 14, 1876.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING JAN. 22, 1876.

	Estimated Population.	Total Mortality for the Week.	Annual Death-Rate per 1000 during Week.
New York . . . . .	1,060,000	600	29
Philadelphia . . . . .	800,000	319	21
Brooklyn . . . . .	500,000	255	26
Boston . . . . .	342,000	182	28
Providence . . . . .	100,700	27	14
Worcester . . . . .	50,000	18	19
Lowell . . . . .	50,000	12	12
Cambridge . . . . .	48,000	16	17
Fall River . . . . .	45,000	13	15
Lawrence . . . . .	35,000	8	12
Lynn . . . . .	33,000		
Springfield . . . . .	31,000	8	13
Salem . . . . .	26,000	8	16

Normal Death-Rate, 17 per 1000.

BOOKS AND PAMPHLETS RECEIVED. — The Body and its Ailments. By George H. Napheys, A. M., M. D. Philadelphia: H. C. Watts & Co. 1876.

Medical Thermometry and Human Temperature. By E. Seguin, M. D. New York: William Wood & Co. 1876.

BOSTON SOCIETY FOR MEDICAL OBSERVATION. — A regular meeting of the society will be held on Monday evening next, at eight o'clock, at the hall in Temple Place. Dr. Webber will read a paper on Infantile Facial Paralysis.

MESSESS. EDITORS, — Now that the speculum has become the medical man's vade-mecum, I feel sure that any new discovery in uterine pathology will be hailed with joy. I hasten therefore to inform you that there are at the present moment no less than five young ladies in a suburban town who are confined to their beds by "womb complaint caused by nothing but taking cold while stepping on and off the steam-cars;" at least so says the lady practitioner who visits them daily. To those of us who are still lacking a pretense for examining such of our female patients as have not yet passed through the ordeal, this newly-discovered cause of disease will prove a blessed boon. Nor is medicine the only industry which may be benefited. I see in the dim future patent protectors, and other "fixins," as well as suits for damages brought against those companies whose car-steps exceed a certain height. Science has indeed made a stride (straddle, one might say) in advance, and I would humbly suggest pleurisy of the uterus, or broncho-pneumonia of the ovum, as an appropriate name for this centennial disease, and remain yours truly,

QUACK.